

DATA SHEETS FOR  
GUNS, HOWITZERS, AND MORTARS  
INTEROPERABLE AMMUNITION

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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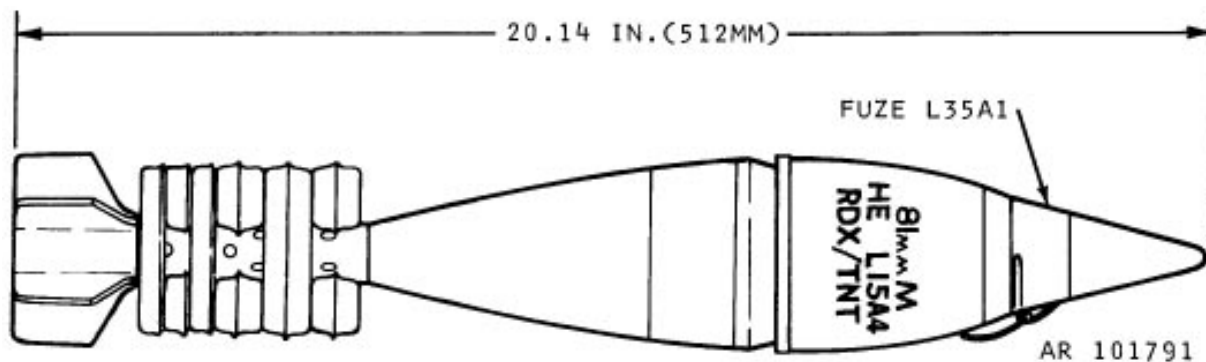
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## CHAPTER 4

### AMMUNITION FOR MORTARS

# CARTRIDGE, 81 MILLIMETER: HE, L15A4 (UK) (CA)



## Use:

This cartridge is similar to US 81mm Cartridge: HE, M374A2 and M374A3 and can be fired in US mortars M29 and M29A1. It is used against personnel and materiel, providing both blast and fragmentation effects.

## Description:

The complete round consists of a projectile body, percussion (point detonating (PD)) fuze, fin assembly, and the Mark 2 propelling charge system.

## NOTE

The above illustration shows the projectile as issued with six increments. As issued, this projectile is fuze with Model 162 fuze. However, to illustrate the round as fuze for US use the L35A1 fuze as shown.

The projectile body, machined from ductile iron casting, is filled with approximately 1.5 lb (0.675 kg) of RDX/TNT. The projectile body is threaded at the base to accept the fin assembly and has a nose adapter which accepts the percussion PD fuze L35A1. The aluminum ignition cartridge L33A1 consists of a flash tube, cap holder and propellant. The ignition cartridge fits inside the cartridge housing of the fin assembly.

The Mark 2 propelling charge system is composed of the ignition cartridge L33A1 and six propellant increments. These increments, which are horseshoe-shaped celluloid containers filled with propellant, are placed with their open ends staggered along the cartridge housing of the fin assembly. Three L32A1 increments containing 180 grains (11.7 g) of propellant are placed next to the projectile body. Propelling charge No. 1 consists of the ignition cartridge L33A1 and one increment L32A1; No. 3 with ignition cartridge L33A1 with L32A2 increments; No. 5, with the L33A1 ignition cartridge plus three L32A1 and L34A2 increments.

When firing cartridge L15A4 in the M29 and M29A1 cannon, the maximum propellant charge is limited to five increments. Therefore, the increment L34A2 nearest the projectile body must be removed before firing for maximum charge.

All rounds are issued with a polystyrene protector cover over the propellant increments. The tail assembly is protected with a rubberized waterproof cover.

#### Functioning:

When the cartridge is placed in the mortar tube, it slides down until the percussion primer in the hub of the fin assembly strikes the firing pin in the base cap of the mortar. The primer flashes through the central hole in the cartridge housing to ignite the ignition cartridge. The cartridge ignites the propellant charge, and rapidly expanding gases from the burning propellant expel the projectile from the tube and propel it to the target. The projectile is fin-stabilized in flight. Functioning of the fuze detonates the fuze booster charge and, in turn, the high explosive charge. The projectile bursts on the target producing near optimum fragmentation and blast effect.

#### Tabulated Data:

##### Complete Round:

Type .....HE  
 Weight.....4.32 kg (9.523 lb)  
 Length.....512 mm (20.14 in.)  
 Cannon used with .....UK L16A1, L16A2 US M29, M29A1

##### Projectile:

Body material .....Ductile cast iron casting (Hollow)  
 Color .....Deep bronze green w/golden yellow hazard band  
 Filler and weight.....RDX/TNT, 60/40, 0.675 kg (1.5 lb)  
 Fuze .....L35A1  
 Fin assembly .....TV180

##### Propelling charge:

Primary (ignition) cartridge .....L33A1  
 Augmenting cartridge (increments).....L34A2, 3 cartridges; L32A1, 3 cartridges  
 Performance.....Use UK Firing Tables

#### Temperature Limits:

##### Firing:

Lower limit .....-40°F (-40°C)  
 Upper limit.....+125°F (+52°C)

##### Storage:

Lower limit .....Not available  
 Upper limit.....Not available

Packing.....2 rounds per plastic container; 2 containers per steel box

Packing Box:

Weight.....32.4 kg (72.0 lb)  
Dimensions .....575 x 255 x 259 mm (23 x 9-3/4 x 10-3/8 in.)  
Cube.....0.04 m<sup>3</sup> (1.34 ft<sup>3</sup>)

Shipping and Storage Data:

Storage class/SCG.....(08) 1.2E  
DOT shipping class.....A  
DOT designation.....AMMUNITION FOR CANNON WITH EXPLO-  
SIVE PROJECTILES  
DODAC .....1315-C256

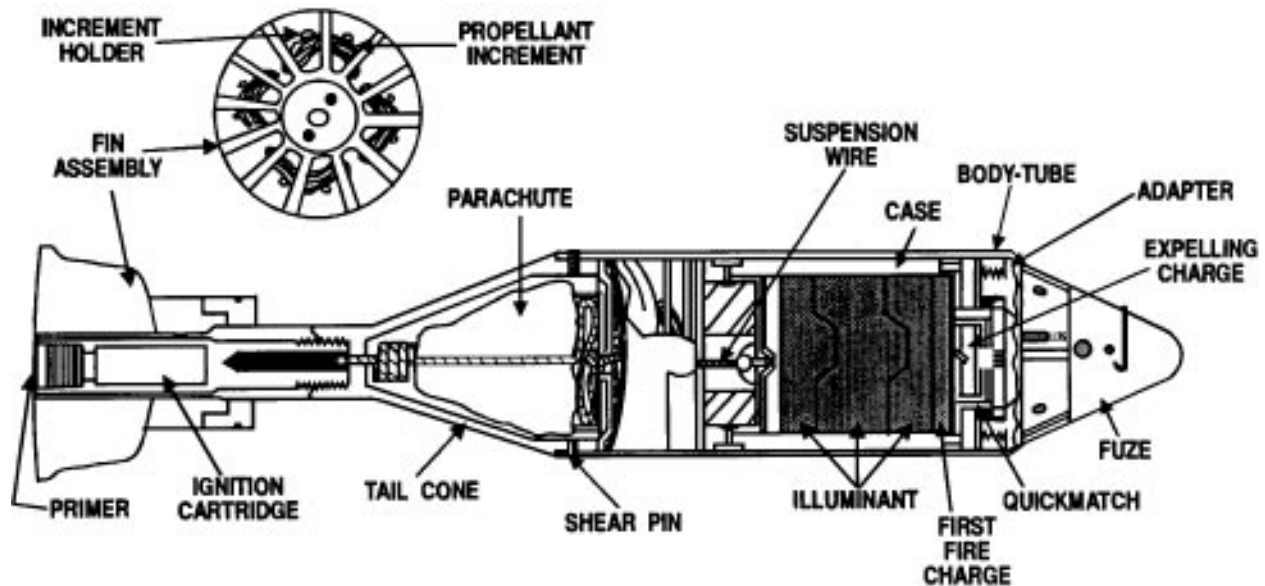
Limitations:

Not available.

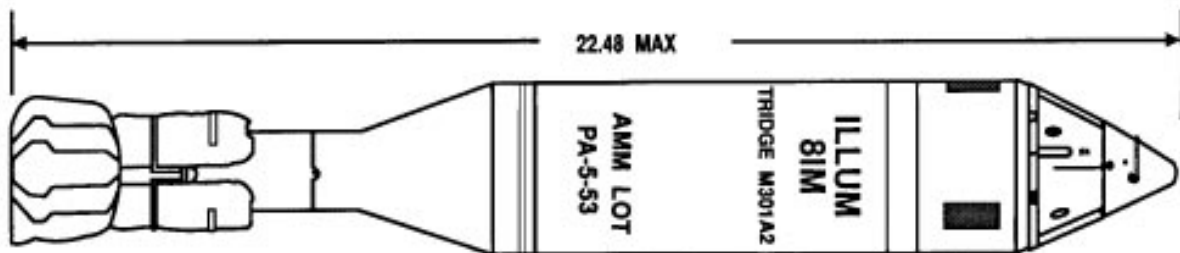
References:

Not available.

CARTRIDGE, 81 MILLIMETER: ILLUMINATING, M301A2 AND M301A1 (NO)



U  
AR 199493



U  
AR 199494

Type Classification:

CONT MSR 11756003

Use:

This cartridge is used for illuminating a desired point or area.

Description:

The complete round consists of a body tube and tail cone assembly, an illuminant candle and parachute assembly, a time fuze with a built-in expelling charge, a fin assembly with propellant charge, and an ignition cartridge with percussion primer. The nose of the thin-walled steel tubing body is fitted with a steel adapter and internally threaded to accept the fuze. The tail cone is inter-

nally threaded to accept the fin assembly, and is attached to the body tube with four equally spaced shear pins. The illuminant assembly, consisting of a first-fire charge and an illuminant charge, is contained in a boxboard case and attached to the parachute with a 30-inch suspension line.

Functioning:

When the cartridge is loaded, it slides down the mortar tube until the percussion primer in the ignition cartridge strikes the firing pin in the base cap of the mortar. The primer ignites the ignition cartridge, and the cartridge ignites the propellant charge. Rapidly expanding gases from the burning propellant expel the projectile from the tube and propel it to the desired height. The projectile is fin-stabilized in flight. Functioning of the time fuze detonates the expelling charge and ignites the first-fire charge by means of a length of quick match. The expelling charge separates the cone from the tube allowing the illuminant candle and parachute to fall free. The first-fire charge ignites the illuminant, and the parachute deploys to support the burning candle. Burning time is at least 60 seconds with a minimum of 500,000 candlepower.

Difference Between Models:

Cartridge M301A1 has gas check bourrelet grooves and some minor dimensional differences in metal parts.

Tabulated Data:

Complete Round:

Type .....	Illuminating
Weight.....	10.7 lb
Length.....	22.48 in.
Cannon used with .....	M1, M29, M29A1

Projectile:

Body material .....	Steel tube
Color:	
Old .....	Gray w/white band & white markings
New.....	White w/black markings
Filler and weight.....	Illuminating, 1.37 lb

Components:

Ignition cartridge .....	M6
Propellant charge .....	M2A1
Percussion primer .....	M34
Fuze .....	M4A1
Fin assembly .....	Time, M84

Temperature Limits:

## Firing:

Lower limit .....-40°F (-40°C)  
 Upper limit.....+125°F (+52°C)

## Storage:

Lower limit .....-80°F (-62.2°C) (for period not more than 3 days)  
 Upper limit.....+160°F (+71.1°C) (for period not more than 4  
 hr/day)

\*Packing1 .....round in jungle wrapped fiber or metal container; 3  
 fiber/metal containers in wooden box

## \*Packing Box:

Weight.....53.6 lb  
 Dimensions .....30-9/16 x 13-15/16 x 6-25/32 in.  
 Cube.....1.9 cu ft

## \*NOTE:

See SC for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class .....(08) 1.2  
 Storage compatibility group.....G  
 DOT shipping class.....A  
 DOT designation.....AMMUNITION FOR CANNON WITH ILLUMI-  
 NATING PROJECTILES  
 DODAC .....1315-C256  
 Drawing number .....8865058

Ballistics:

Charge	Muzzle Velocity (fps)	Range to burst	
		(mtr)	(yd)
2*	440	1000	1094
3	517	1600	1750
4	595	2150	2350

\*Charge 2 is the ignition cartridge and two increment charges; Charge 4 is the ignition cartridge and four increment charges.

Limitations:

Firing with less than two propellant increment charges (Charge 2) is not authorized.



TM 43-0001-28-3

References:

DARCOM-P 700-3-3

SB 700-20

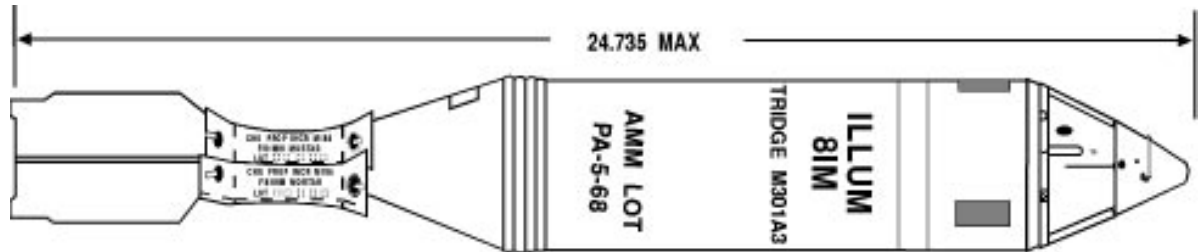
SC 1305/30-IL

TM 9-1015-200-12

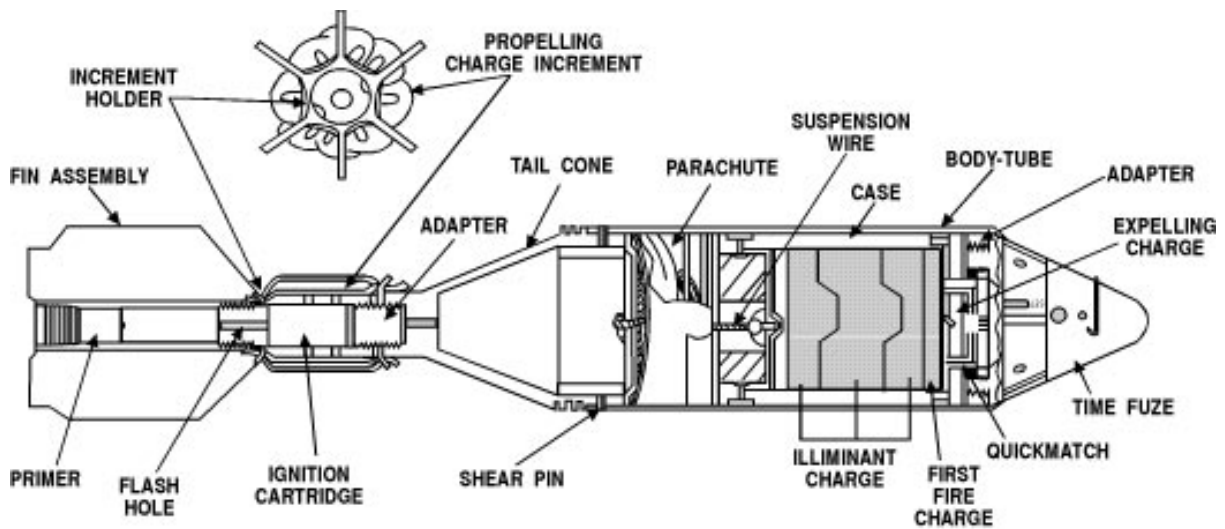
TM 9-1300-251-20

TM 9-3071-1

CARTRIDGE, 81 MILLIMETER: ILLUMINATING, M301A3 (DE, IT)



U  
AR 199492



U  
AR 199491

Type Classification:

Std AMCTC 6390 dtd 1968

Use:

This cartridge is used for illuminating a desired point or area.

Description:

The complete round consists of a body tube and tail cone assembly, an illuminant candle and parachute assembly, a time fuze with a built-in expelling charge, a fin assembly with a cartridge housing and propellant increment charges, and an ignition cartridge with percussion primer. The nose of the thin-walled steel tubing body is fitted with a steel adapter and internally threaded to accept the fuze. The tail cone may be internally or externally threaded, depending upon the model. Models that are internally threaded require an adapter for attaching the fin assembly. The tail cone is attached to the body with four equally spaced shear pins. The illuminant assembly,

consisting of a first-fire charge and an illuminant charge, is contained in a boxboard case and attached to the parachute with a 30-inch suspension line.

#### Functioning:

When the cartridge is loaded, it slides down the mortar tube until the percussion primer in the hub of the fin assembly strikes the firing pin in the base cap of the mortar. The burning primer flashes through the central flash hole in the cartridge housing, igniting the ignition cartridge. The cartridge ignites the propellant charge, and rapidly expanding gases from the burning propellant expel the projectile from the tube and propel it to the desired height. The projectile is fin-stabilized in flight. Functioning of the time fuze detonates the expelling charge by means of a length of quickmatch. The expelling charge also separates the cone from the tube, allowing the illuminant candle and parachute assembly to fall free. The first-fire charge ignites the illuminant, and the parachute deploys to support the candle. Burning time is at least 60 seconds with a minimum of 500,000 candlepower.

#### Difference Between Models:

Fin assembly attaches with or without adapter, depending upon design of the tail cone.

#### Tabulated Data:

##### Complete Round:

Type .....	Illuminating
Weight.....	10.1 lb
Length.....	24.735 in.
Cannon used with .....	M1, M29, M29A1

##### Projectile:

Body material .....	Steel tube
Color .....	White w/black markings
Filler and weight.....	Illuminating, 1.37 lb

##### Components:

Ignition cartridge .....	M66E1
Propellant charge .....	M185
Percussion primer .....	M71A2
Fuze .....	Time, M84A1
Fin assembly .....	M158

#### Temperature Limits:

##### Firing:

Lower limit .....	-40°F (-40°C)
Upper limit.....	+125°F (+52°C)

##### Storage:

Lower limit .....	-80°F (-62.2°C) (for period not more than 3 days)
Upper limit.....	+160°F (+71.1°C) (for period not more than 4 hr/day)

\*Packing.....1 round in jungle wrapped fiber or metal container; 3  
fiber/metal containers in wooden box

\*Packing Box:

Weight.....53.6 lb  
Dimensions .....30-9/16 x 13-15/16 x 6-25/32 in.  
Cube.....1.9 cu ft

\*NOTE:

See SC for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class .....(08) 1.2  
Storage compatibility group.....G  
DOT shipping class.....A  
DOT designation.....AMMUNITION FOR CANNON WITH ILLUMI-  
NATING PROJECTILES  
DODAC .....1315-C226  
Drawing number .....9220705

Ballistics:

Charge	Fuze Setting (sec)	Horizontal Range (mtr)	Height of burst (mtr)	Elevation (mil)
3*	20.6	250	600	1501.1
3	19.93	250	600	1501.1
3	15.9	1050	600	1042.1
4	19.8	1550	600	1004.3
5	22.1	2050	600	942.6
6	26.1	2450	600	967.4
7	27.6	2950	600	904.7
8	29.8	3150	600	883.9

\*Charge 3 is the ignition cartridge and three increment charges; Charge 8 is the ignition cartridge and eight increment charges.

Limitations:

Firing with less than three propellant increment charges (Charge 3) is not authorized. Exposure of the propelling charge to moisture can produce short rounds.

TM 43-0001-28-3

References:

DARCOM-P 700-3-3

SB 700-20

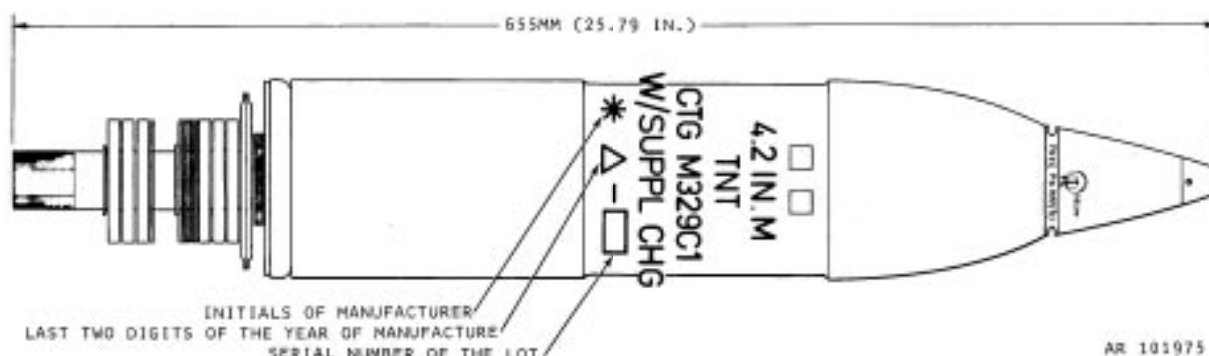
SC 1305/30-IL

TM 9-1015-200-12

TM 9-1300-251-20

TM 9-3071-1

## CARTRIDGE, 107 MILLIMETER (4.2-INCH): HE, M329C1 (NL)

Use:

This cartridge is used against personnel and materiel, providing both fragmentation and blast effect.

Description:

The complete round consists of a projectile body, a fuze, and a tail assembly. The steel body is designed to accommodate a point detonating (PD) fuze. A deep fuze well in the nose is fitted with a supplementary charge of TNT. The tail assembly includes a pressure plate and rotating disc, a propelling charge, a cartridge container, and ignition cartridge, and a striker nut assembly.

Functioning:

When the cartridge is released, it slides down the mortar tube until the percussion primer strikes the firing pin. The flash from the primer ignites the ignition cartridge, which, in turn, ignites the propelling charge. The gases from the propelling charge exert pressure on the pressure plate at the base of the projectile which expands the rotating disc, engaging it in the rifling of the tube. The spin, imparted to the projectile as it leaves the weapon, stabilizes it in flight. The functioning of the fuze detonates the supplementary charge, and, in turn, the high explosive charge. The projectile bursts on target producing near optimum fragmentation and blast effect.

Tabulated Data:

## Complete Round:

Type .....	HE
Weight.....	12.29 kg (27.07 lb)
Length.....	655 mm (25.79 in.)

## Projectile:

Body material .....	Steel
Color .....	Olive drab w/white markings
Filler and weight.....	3.2 kg (7.08 lb) TNT

Supplementary charge.....0.165 kg (0.365 lb) TNT

Components:

Ignition cartridge .....M2A2  
Propelling charge .....M36A1  
Fuze .....Point detonating, M557 or M557C1

Performance (full charge):

Maximum range.....5650 m (6215 yd)  
Muzzle velocity .....299 mps

Temperature Limits:

Firing:

Lower limit .....-40°F (-40°C)  
Upper limit.....+125°F (+52°C)

Storage:

Lower limit .....-80°F (-62.2°C) (for period not more than 3 days)  
Upper limit.....+160°F (+71.1°C) (for period not more than  
4hr/day)

\*Packing.....1 round in fiber container; 2 fiber containers in  
wooden box

Packing Box:

Weight.....37.0 kg (81.5 lb)  
Dimensions .....813 x 281 x 183 mm (32 x 11 x 7.2 in.)  
Cube.....0.04 m<sup>3</sup> (1.46 ft<sup>3</sup>)

Shipping and Storage Data:

Storage class/SCG.....1.1E  
DOT shipping class.....A  
DOT designation.....AMMUNITION FOR CANNON WITH EXPLO-  
SIVE PROJECTILES  
DODAC .....Not available  
Drawing number .....Not available

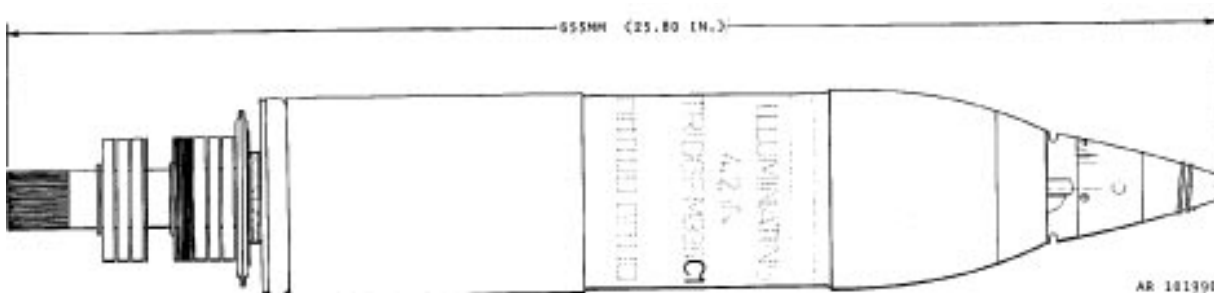
Limitations:

Short rounds may occur when firing with fewer than 10 increments.

References:

Not available.

## CARTRIDGE, 107 MILLIMETER (4.2-INCH): ILLUMINATING, M335C1 (NL)

Use:

This cartridge is used for target and battlefield illumination at night and during other periods of low visibility.

Description:

The complete round consists of a projectile body with a detachable base plug, a mechanical time (MT) fuze, an illuminant assembly attached to a parachute assembly, and a tail assembly. The steel tube body is designed to accommodate an expelling charge immediately below the fuze, and the base plug is attached with four equally spaced shear pins. The illuminant assembly consists of a first-fire charge and an illuminant charge, contained in a canister fitted with anti-rotational brakes to reduce canister spin at the time of ejection and prevent twisting of the parachute suspension lines. The tail assembly includes a pressure plate and rotating disc, a propelling charge, a cartridge container and ignition cartridge; and a striker nut assembly.

Functioning:

When the cartridge is released, it slides down the mortar tube until the percussion primer strikes the firing pin. The flash from the primer ignites the ignition cartridge which, in turn, ignites the propelling charge. The gases from the propelling charge exert pressure on the pressure plate at the base of the projectile which expands the rotating disc, engaging it in the rifling of the tube. The spin imparted to the projectile as it leaves the weapon stabilizes it in flight. Upon functioning of the MT fuze, the expelling charge is ignited, expelling the illuminant and parachute assemblies from the projectile body and igniting the first-fire charge in the illuminant canister. The first-fire charge ignites the illuminant charge, the spring-loaded brakes extend to stop rotation, and the parachute deploys. Burning time is approximately 70 seconds at 500,000 candlepower.

Tabulated Data:

## Complete Round:

Type .....	Illuminating
Weight .....	11.8 kg (26 lb)
Length .....	655 mm (25.80 in.)
Cannon used with .....	M30



Projectile:

Body material .....Steel  
Color .....White w/black markings  
Filler and weight.....Illuminant, 1.5 kg (3.31 lb)  
Expelling charge .....Black powder, 0.08 kg (0.18 lb)

Components:

Ignition cartridge .....M2A2  
Propelling charge .....M36A1  
Fuze .....MT, NR151

Performance (full charge):

Maximum range.....5290 m (5819 yd)  
Muzzle velocity .....301.7 mps

Temperature Limits:

Firing:

Lower limit .....-40°F (-40°C)  
Upper limit.....+125°F (+52°C)

Storage:

Lower limit .....-80°F (-62°C) (for period not more than 3 days)  
Upper limit.....+160°F (+70°C) (for period not more than 4 hr/day)

Packing: .....1 round in fiber container; 2 containers in wooden box

Packing Box:

Weight.....38.3 kg (84.5 lb)  
Dimensions .....813 x 281 x 193 mm (32 x 11 x 7.2 in.)  
Cube.....0.04 m<sup>3</sup> (1.4 ft<sup>3</sup>)

Shipping and Storage Data:

Storage class/SCG.....(08) 1.2G  
DOT shipping class.....A  
DOT designation.....AMMUNITION FOR CANNON WITH ILLUMINATING PROJECTILES  
DODAC .....Not available  
Drawing number .....Not available

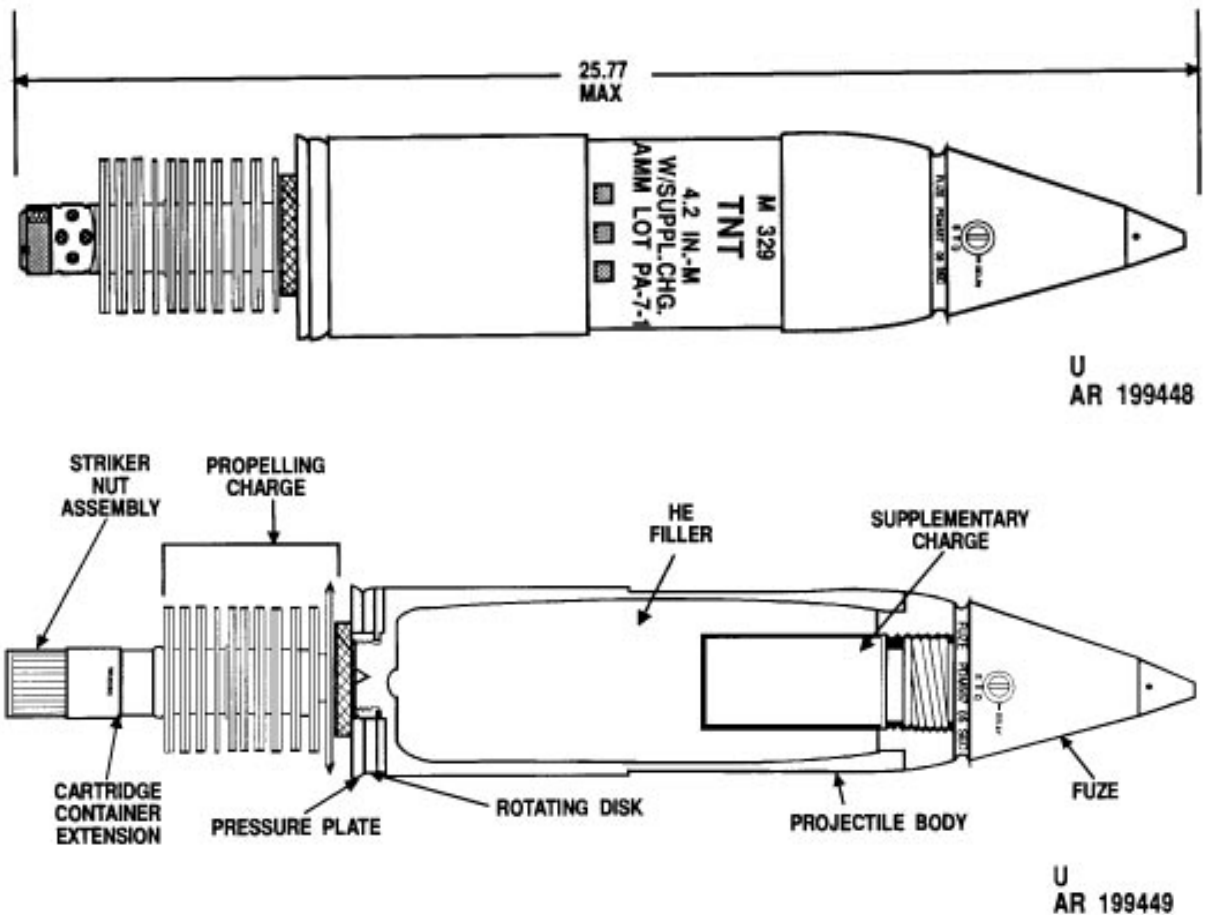
Limitations:

Not available.

References:

Not available.

## CARTRIDGE, 4.2-INCH: HE, M329A1 (NL)

Type Classification:

Std (LCC-B) 01756003

Use:

This cartridge is used against personnel and materiel, providing both fragmentation and blast effort.

Description:

The complete round consists of a projectile body, a fuze, and a tail assembly. The steel body is designed to accommodate an impact, delay, or proximity fuze. A deep fuze well in the nose is fitted with a supplementary charge of TNT; this charge is removed to accommodate certain proximity fuzes. The tail assembly includes a pressure plate and rotating disc, a propelling charge, a cartridge container and ignition cartridge, and a striker nut assembly.

Functioning:

When the cartridge is released, it slides down the mortar tube until the percussion primer strikes the firing pin. The flash from the primer ignites the ignition cartridge, which, in turn, ignites the propelling charge. The gases from the propelling charge exert pressure on the pressure plate at the base of the projectile which expands the rotating disc, engaging it in the rifling of the tube. The spin, imparted to the projectile as it leaves the weapon, stabilizes it in flight. The functioning of the fuze detonates the supplementary charge and, in turn, the high explosive charge. Depending on the type of fuze used, the projectile bursts either over or on target, producing near optimum fragmentation and blast effect.

Tabulated Data:

## Complete Round:

Type .....HE  
 Weight.....27.07 lb  
 Length.....25.79 in.  
 Cannon used with .....M2, M30

## Projectile:

Body material .....Steel tube  
 Color .....Olive drab w/white markings  
 Filler and weight.....7.08 lb TNT

Supplementary charge.....0.365 lb TNT

## Components:

Ignition cartridge .....M2A2\*  
 Propelling charge.....M36A1\*  
 Fuze .....PD, M557; M739 MTSQ, M520 series or  
 M564, Prox., M513 series M728, M732

## \*NOTE:

See separate data sheets.

## Performance (full charge):

Maximum range.....6180 yd (5650 mtr)  
 Muzzle velocity .....981 fps (299 mps)

Temperature Limits:

## Firing:

Lower limit .....-40°F (-40°C)  
 Upper limit.....+125°F (+52°C)

## Storage:

Lower limit .....-80°F (-62.2°C) (for period not more than 3 days)

Upper limit.....+160°F (+71.1°C) (for period not more than  
4hr/day)

\*Packing.....1 round in fiber container; 2 fiber containers in  
wooden box

\*Packing Box:

Weight.....76 lb

Dimensions .....31-5/16 x 11-13/16 x 7-3/8 in.

Cube.....1.6 cu ft

\*NOTE:

See SC for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class 1.1

Storage compatibility group.....E

DOT shipping class.....A

DOT designation.....AMMUNITION FOR CANNON WITH EXPLO-  
SIVE PROJECTILES

DODAC .....1315-C704 w/Fuze

DODAC .....1315-C705 w/o Fuze

Drawing number .....8863685

Limitations:

Short rounds may occur when firing with fewer than 10 increments. Minimum charge for firing with a proximity fuze is 10 increments.

References:

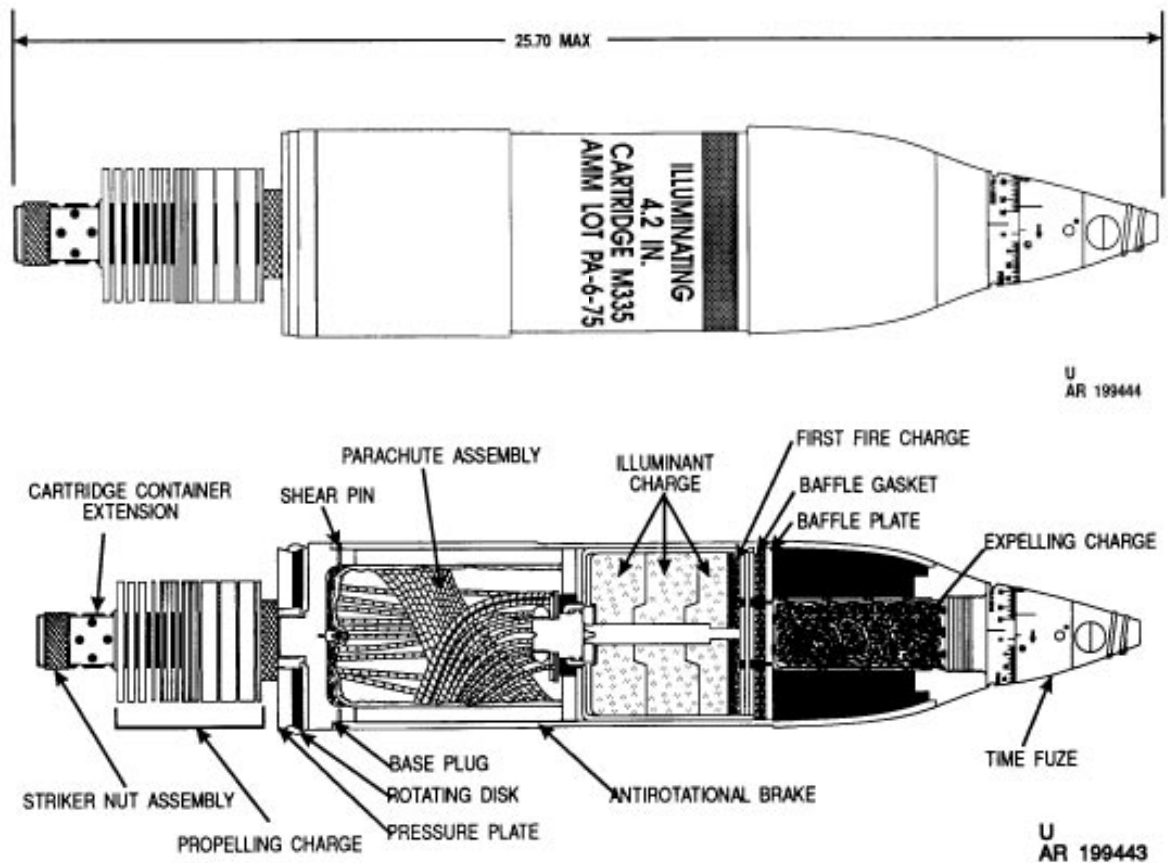
SC 1305/30-IL

TM 9-1015-215-12

TM 9-1300-251-20

TM 9-1320-241-12

## CARTRIDGE, 4.2-INCH: ILLUMINATING, M335A1 AND M335 (GR)



### Type Classification:

M335A1: Std AMCTC 3881 dtd 1965

M335: Cont AMCTC 9546 dtd 1972

### Use:

This cartridge is used for target and battlefield illumination at night and during other periods of low visibility.

### Description:

The complete round consists of a projectile body with a detachable base plug, and MTSQ fuze, an illuminant assembly attached to a parachute assembly, and a tail assembly. The steel tube body is designed to accommodate an expelling charge immediately below the fuze, and the base plug is attached with four equally spaced shear pins. The illuminant assembly consists of a first-fire charge and an illuminant charge, contained in a canister fitted with anti-rotational brakes to reduce canister spin at the time of ejection and prevent twisting of the parachute suspension lines. The tail assembly includes a pressure plate and rotating disc, a propelling charge, a cartridge container and ignition cartridge, and a striker nut assembly.

Functioning:

When the cartridge is released, it slides down the mortar tube until the percussion primer strikes the firing pin. The flash from the primer ignites the ignition cartridge which, in turn, ignites the propelling charge. The gases from the propelling charge exert pressure on the pressure plate at the base of the projectile which expands the rotating disc, engaging it in the rifling of the tube. The spin imparted to the projectile as it leaves the weapon stabilizes it in flight. Upon functioning of the MTSQ fuze, the expelling charge is ignited, expelling the illuminant and parachute assemblies from the projectile body and igniting the first-fire charge in the illuminant canister. The first-fire charge ignites the illuminant charge, the spring-loaded brakes extend to stop rotation, and the parachute deploys. Burning time is approximately 70 sec at 500,000 candlepower for the M335A, and 60 sec for the M335.

Difference Between Models:

M335A1 and M335 are similar except for ignition cartridges and propelling charges. See separate data sheets for detailed descriptions of Ignition Cartridges M2A1 and M2, and Propelling Charges M36A1 and M36.

Tabulated Data:

## Complete Round:

Type .....Illuminating  
 Weight.....26.00 lb  
 Length.....25.70 in.  
 Cannon used with .....M2, M30

## Projectile:

Body material .....Steel  
 Color .....White w/black markings  
 Filler and weight.....Illuminating, 3.31 lb  
 Expelling charge .....BP, 0.18 lb

## Components:

	<u>M335</u>	<u>M335A1</u>
Ignition cartridge .....	M2*	M2A1*
Propelling charge .....	M36*	M36A1*
Fuze .....	MTSQ, M501	MT, M562

## Performance (full charge):

	<u>M335</u>	<u>M335A1</u>
Maximum range.....	5251 yd (4800 mtr)	5787 yd (5290 mtr)
Muzzle velocity .....	952 fps (290 mps)	990 fps (301.7 mps)

## \*NOTE:

See separate data sheets.

Temperature Limits:

## Firing:

Lower limit .....-40°F (-40°C)  
 Upper limit.....+125°F (+52°C)

Storage:

Lower limit .....-80F (-62.2°C) (for period not more than 3 days)  
Upper limit.....+160°F (+71.1°C ) (for period not more than 4  
hr/day)

\*Packing.....1 round in fiber container; 2 containers in wooden  
box

\*Packing Box:

Weight.....76.0 lb  
Dimensions .....31-5/16 x 11-13/16 x 7-5/8 in.  
Cube.....1.6 cu ft

\*NOTE:

See SC for complete packing data including NSN's.

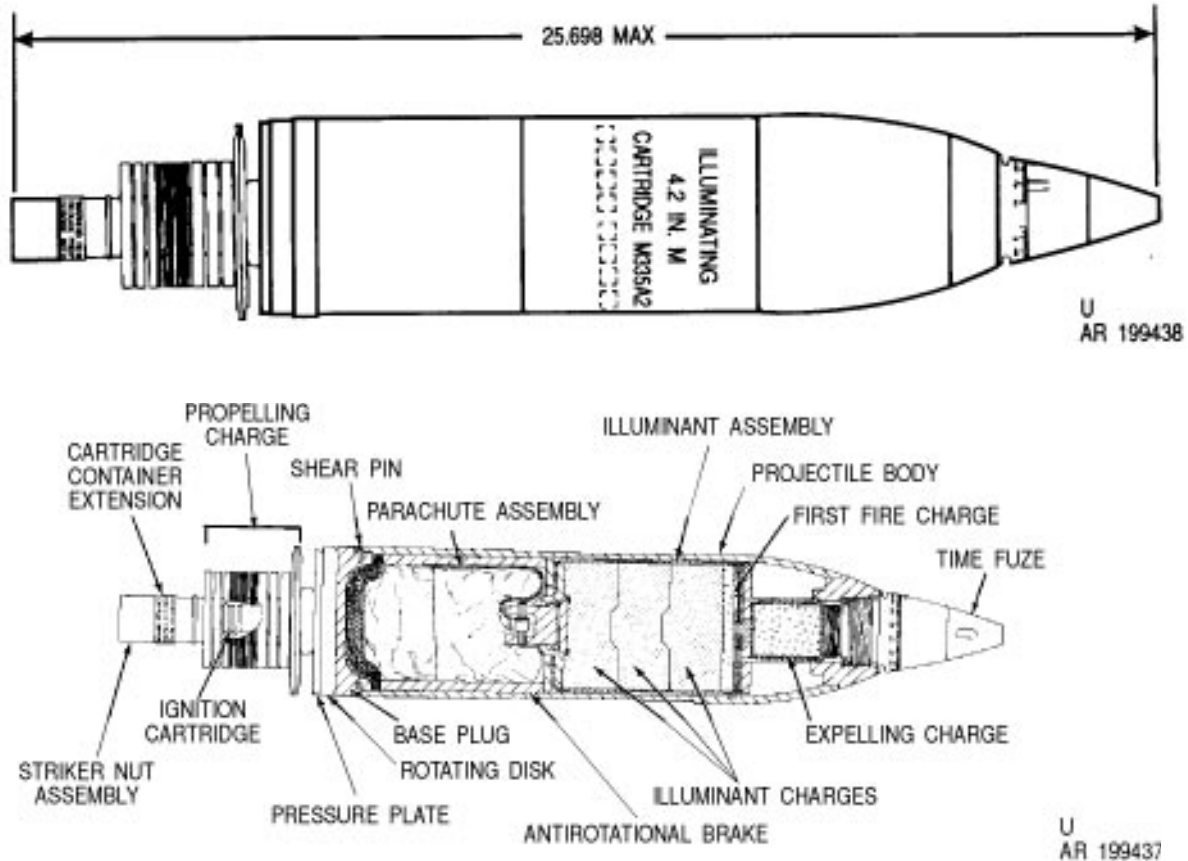
Shipping and Storage Data:

Quantity-distance class .....(08) 1.2  
Storage compatibility group.....G  
DOT shipping class.....A  
DOT designation.....AMMUNITION FOR CANNON WITH ILLUMI-  
NATING PROJECTILES  
DODAC .....1315-C706  
Drawing number .....8833724 (M335A1) 8833741 (M335)

References:

SC 1305/30-IL  
TM 9-1015-215-12  
TM 9-1300-251-20  
TM 9-1320-241-12

## CARTRIDGE, 4.2-INCH: ILLUMINATING, M335A2 (GR, BE, NO)

Type Classification:

Std AMCTC 3881 dtd 1965

Use:

This cartridge is used for target and battlefield illumination at night and during other periods of low visibility.

Description:

The complete round consists of a projectile body with a detachable base plug, a time fuze, an illuminant assembly attached to a parachute assembly, and a tail assembly. The steel tube body is designed to accommodate an expelling charge immediately below the fuze, and the base plug is attached with four equally spaced shear pins. The illuminant assembly consists of a first-fire charge and an illuminant charge, contained in a canister fitted with anti-rotational brakes to reduce canister spin at the time of ejection and prevent twisting of the parachute suspension lines. The tail assembly includes a pressure plate and rotating disc, a propelling charge, a cartridge container and ignition cartridge, and a striker nut assembly.



Functioning:

When the cartridge is released, it slides down the mortar tube until the percussion primer strikes the firing pin. The flash from the primer ignites the ignition cartridge which, in turn, ignites the propelling charge. The gases from the propelling charge exert pressure on the pressure plate at the base of the projectile which expands the rotating disc, engaging it in the rifling of the tube. The spin imparted to the projectile as it leaves the weapon stabilizes it in flight. Upon functioning of the fuze, the expelling charge is ignited, expelling the illuminant and parachute assemblies through the base of the projectile body and igniting the first-fire charge. The first-fire charge ignites the illuminant charge, the spring-loaded brakes extend to stop rotation, and the parachute deploys. Burning time is approximately 90 sec at 850,000 candlepower.

Tabulated Data:

## Complete Round:

Type .....Illuminating  
 Weight.....26.00 lb  
 Length.....25.698 in.  
 Cannon used with .....M2, M30

## Projectile:

Body material .....Steel  
 Color .....White w/black markings  
 Filler and weight.....Illum., 3.31 lb  
 Expelling charge .....BP, 0.18 lb

## Components:

Ignition cartridge .....M2A2\*  
 Propelling charge .....M36A1\*  
 Fuze .....MT, M565, MTSQ M577

## \*NOTE:

See separate data sheets.

## Performance (full charge):

Maximum range.....6006 yd (5490 mtr)  
 Muzzle velocity .....1001 fps (305.1 mps)

Temperature Limits:

## Firing:

Lower limit .....-40°F (-40°C)  
 Upper limit.....+125°F (+52°C)

## Storage:

Lower limit .....-80°F (-62.2°C) (for period not more than 3 days)  
 Upper limit.....+160°F (+71.1°C ) (for period not more than 4  
 hr/day)

\*Packing.....1 round in fiber container; 2 containers in wooden box

\*Packing Box:

Weight.....76.0 lb

Dimensions .....31-5/16 x 11-13/16 x 7-5/8 in.

Cube.....1.6 cu ft

\*NOTE: See SC for complete packing data including NSN's.

Shipping and Storage Data:

Quantity-distance class(.....08) 1.2

Storage compatibility group.....G

DOT shipping class.....A

DOT designation.....AMMUNITION FOR CANNON WITH ILLUMINATING PROJECTILES

DODAC .....1315-C706

Drawing number .....8886595

References:

SC 1305/30-IL

TM 9-1015-215-12

TM 9-1015-215-20&P

TM 9-1015-215-34

TM 9-1015-215-34&P

TM 9-1300-251-20

TM 9-1300-251-34